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CLAIMS

1.(amended) An optical wireless local area network for interconnecting a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein:

a base station including a light receiving function of an angle-diversity type and a plurality of optical transmitters having directionality is provided and the plurality of optical transmitters can separately perform intensity modulation.

2.(amended) An optical wireless local area network according to claim 1, wherein only one terminal is accommodated in each space cell corresponding to each of the plurality of optical transmitters.

3.(amended) An optical wireless local area network according to claim 1 or 2, wherein a far-field pattern of a light source of each of the plurality of optical transmitters is satisfactorily approximated by a generalized Lambertian; a half intensity-angle ϕ of the light source of each of the plurality of optical

transmitter with respect to an angle θ of each space cell is given by $\phi=C\times\theta$ (C is constant) where C is in a range from 0.70 to 1.00.

4.(amended) An optical wireless local area network according to claim 1, 2, or 3, wherein the base station detects a communication request light signal transmitted from a terminal to be communicated with the base station, and notifies the terminal of intensity data of the light signal or data of a signal/noise ratio from the terminal.

5.(amended) An optical wireless local area network according to claim 4, wherein the terminal has a function of manually adjusting a direction of an optical transmitter-receiver while recognizing the intensity data of the light signal or the data of the signal/noise ratio transmitted from the base station.

6.(amended) An optical wireless local area network according to any one of claims 1-5, wherein each terminal includes an optical transmitter having one or a plurality of light sources, an optical receiver having an optical filter for selectively attenuating

light transmitted from the transmitter of the terminal, and means for easily removing the optical filter, in order to provide a single inherent wavelength band for each terminal.

7.(amended) An optical wireless local area network according to any one of claims 1-5, wherein each terminal includes an optical transmitter having one or a plurality of light sources, an optical receiver having an optical filter for selectively attenuating light transmitted from the transmitter of the terminal, and means for easily removing the optical filter, in order to provide a single inherent wavelength band for a communication standard or application of each terminal.

8.(amended) An optical wireless local area network according to claim 6 or 7, wherein a wavelength band of the light sources of the transmitters of the base station has the same spectrum component as that of the one or a plurality of wavelength bands used in the terminals, and has a relatively sufficient intensity of a spectrum component different from that used in each of the terminals.

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9.(deleted)

10.(amended) An optical wireless local area network for interconnecting a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein communication is started by a procedure including:

(a) a base station including a light receiving function of an angle-diversity type detecting a communication request light signal transmitted from each terminal;

(b) the base station comparing among a signal from each photodetector receiving the communication request light signal, and selecting a photodetector having a highest light signal intensity or a highest light signal/noise intensity ratio, or calculating a highest light signal/noise intensity ratio based on signals of a plurality of photodetectors, and recognizing space cells existing in each terminals;

(c) the terminal being notified of intensity data of the light signal or data of a light signal/noise ratio from an optical transmitter of the

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terminal forming an optical space cell corresponding to each terminal;

(d) a direction of the optical transmitter-receiver of the terminal being manually adjusted by a user while recognizing the intensity data of the light signal or the data of the light signal/noise ratio; and

(e) a signal providing communication permission being transmitted from the base station to the terminal when the intensity data of the light signal or the data of the light signal/noise ratio of the communication request light signal reaches a value allowing communication.

11.(added) A space-division optical wireless local area network for simultaneously establishing multiple connection via a base station among a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein:

the base station includes at least a light receiving function of an angle-diversity type and a light transmitting function of an angle-diversity type; and

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each of a plurality of light sources of an optical transmitter can separately perform intensity modulation.

12.(added) A space-division optical wireless local area network for simultaneously establishing multiple connection via a base station among a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein:

the base station separately includes at least a light receiving function of an angle-diversity type and a plurality of optical transmitter groups; and

each of a plurality of light sources of the optical transmitter groups can separately performs intensity modulation.

13.(added) A space-division optical wireless local area network for simultaneously establishing multiple connection via a base station among a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein:

the base station includes at least a light receiving function of an angle-diversity type and a plurality of optical transmitter groups separately;

an optical receiver includes at least a plurality of pairs of a photodetector and a lens system;

the plurality of optical transmitters have desired diverged angles toward directions different from each other, and the plurality of optical transmitters can perform intensity modulation; and

the number of the pairs of the photodetector and the lens system in the optical receiver is equal to the number of the plurality of optical transmitters.

14.(added) A space-division optical wireless local area network for simultaneously establishing multiple connection via a base station among a plurality of terminals performing one-to-one directed communication between each of the plurality of terminals as an optical communication function, wherein:

the base station separately includes at least a light receiving function of an angle-diversity type and a plurality of optical transmitter groups;

an optical receiver includes at least a photodetector array having a predetermined number of pixels and a lens system shared by all of the pixels;

the plurality of optical transmitters have desired diverged angles toward directions different from each other, and intensities of the plurality of optical transmitters can be modulated; and

the number of effective pixels to be separately demodulated in the optical receiver is substantially equal to the number of the plurality of optical transmitters.

15.(added) An optical wireless local area network according to any one of claims 11-14, wherein only one terminal is accommodated in each of the space cells corresponding to the plurality of optical transmitters; and

the multiple connection is performed in a one-to-one manner corresponding to a series of transmitted signals from each terminal positioned in each space cell to the base station to a series of received signals from one or a plurality of photodetectors corresponding to the respective space cells of the receiver of the base station.

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16.(added) An optical wireless local area network according to claim 13, wherein only one terminal is accommodated in each space cell corresponding to the plurality of optical transmitters; and

the multiple connection is performed in a one-to-one manner corresponding to a series of transmitted signals from the terminal positioned in each space cell to the base station to a series of received signals from each of the pairs of the photodetectors and the lens systems of the receiver of the base station.

17.(added) An optical wireless local area network according to claim 14, wherein only one terminal is accommodated in each space cell corresponding to the plurality of optical transmitters, and a shape of each pixel of the photodetector array is substantially coincident with an image of each space cell on a surface of the array.

18.(added) An optical wireless local area network according to claim 14, wherein only one terminal is accommodated in each space cell corresponding to the plurality of optical transmitters, and a shape of each

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pixel of the photodetector array is substantially coincident with an image of each space cell on a surface of the array; and

the multiple connection is performed in a one-to-one manner corresponding to a series of transmitted signals from the terminal positioned in each space cell to the base station to a series of received signals from each pixel of the receiver of the base station.

19.(added) An optical wireless local area network according to any one of claims 11-18, wherein a far-field pattern of a light source of each of the plurality of optical transmitters is satisfactorily approximated by a generalized Lambertian; a half intensity-angle ϕ of the light source of each of the plurality of optical transmitter with respect to an angle θ of each space cell is given by $\phi = C \times \theta$ (C is constant) where C is in a range of 0.70 through 1.00.

20.(added) An optical wireless local area network according to any one of claims 11-19, wherein the base station detects a communication request light signal transmitted from a terminal to be communicated with the base station, and notifies the terminal of intensity

data of the light signal or data of a signal/noise ratio from the terminal.

21.(added) An optical wireless local area network according to claim 20, wherein the terminal has a function of manually adjusting a direction of an optical transmitter-receiver while recognizing the intensity data of the light signal or the data of the signal/noise ratio transmitted from the base station.

22.(added) An optical wireless local area network according to any one of claims 11-21, wherein each terminal includes an optical transmitter having one or a plurality of light sources, an optical receiver having an optical filter for selectively attenuating light transmitted from the transmitter of the terminal, and means for easily removing the optical filter, in order to provide a single inherent wavelength band for each terminal.

23.(added) An optical wireless local area network according to any one of claims 11-21, wherein each terminal includes an optical transmitter having one or a plurality of light sources, an optical receiver

having an optical filter for selectively attenuating light transmitted from the transmitter of the terminal, and means for easily removing the optical filter, in order to provide a single inherent wavelength band for a communication standard or application of each terminal.

24.(added) An optical wireless local area network according to claim 22 or 23, wherein a wavelength band of the light sources of the transmitters of the base station has the same spectrum component as that of the one or a plurality of wavelength bands used in the terminals, and has a relatively sufficient intensity of a spectrum component different from that used in each of the terminals.

25.(amended) An optical wireless communication system for use in a space-division optical wireless local area network for enabling simultaneous multiple access via a base station of a plurality of terminals performing one-to-one directed communication between each of the plurality of terminal as an optical communication function, wherein communication is started by a procedure including:

(a) a base station including a light receiving function of an angle-diversity type detecting a communication request light signal transmitted from each terminal;

(b) the base station comparing among a signal from each photodetector receiving the communication request light signal, and selecting a photodetector having a highest light signal intensity or a highest light signal/noise intensity ratio, or calculating a highest light signal/noise intensity ratio based on signals of a plurality of photodetectors, and recognizing space cells existing in each terminals;

(c) the terminal being notified of intensity data of the light signal or data of a light signal/noise ratio from an optical transmitter forming an optical space cell corresponding to each terminal;

(d) a direction of the optical transmitter-receiver of the terminal being manually adjusted while recognizing the intensity data of the light signal or the data of the light signal/noise ratio; and

(e) a signal providing communication permission being transmitted from the base station to the terminal when the intensity data of the light signal or the data of the light signal/noise ratio of the communication

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request light signal reaches a value allowing communication.

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